



Welder-Fabricator Job Book

FINAL DRAFT ; 09/13/2013

Apprenticeship Training Guidelines

**Prepared by
Bureau of Apprenticeship Standards
State Industrial Mechanical & Fluid
Maintenance Committee**

WELDER-FABRICATOR JOB BOOK Section 1: Adhere to Welding and Fabricating Health and Safety Rules and Regulations						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Adhere to AWS/ANSI Z49.1 2012					
	<i>The apprentice shall demonstrate awareness of the following, if applicable:</i>					
01	Section I: Purpose and Scope					
02	Section II: Definitions					
03	Section III: General Provisions, Management and Supervision					
04	Section IV: Protection of Personnel & General Area					
05	Section V: Ventilation					
06	Section VI: Fire Protection and Prevention					
07	Section VII: Confined Space					
08	Section IX: Precautionary Information					
09	Section X: Cutting Safety					
10	Section XI: Arc Welding Safety					
11	Section XII: Resistance Welding Safety					
12	Other Section(s) As Needed by Employer Please specify:					
B.	Adhere to OSHA Standards					
	<i>The apprentice shall properly perform the following, if applicable</i>					
01	Lock-out and tag-out procedures					
02	Enter and exit confined spaces					
03	Locate and interpret MSDS information					
04	Protect self and other workers from possible electrical hazards and electrocution					
05	Apply fall protection safety based on conditions					
06	Use ladders safely					
07	Handle and store gas cylinders					
08	Demonstrate awareness of guard safety					
09	Other (specify):					
10	Other (specify):					
11	Other (specify):					
C.	Adhere to employer safety practices and procedures					
	<i>The apprentice shall properly perform the following, if applicable</i>					
01	Follow permitting procedures including depressurizing and cleaning pipes and systems					
02	Maintain clean and safe work areas					
03	Use tool, machine and shop equipment safeguards, such as screening and guarding					
04	Manually lift and move metal, materials, assemblies, and finished goods safely					
05	Obtain proper certifications for material handling (ex. fork lift, crane, pallet jacks, etc.)					
06	Protect against fires and is prepared to use fire extinguishers					
07	Respond to emergencies based on employer specific training					

08	Other (specify):					
09	Other (specify):					
10	Other (specify):					

WELDER-FABRICATOR JOB BOOK
Section 2: Interpret Technical Drawings, Prints, Job Specifications and Orders

Task		Date	JW Initials	Date	JW Initials	JAC
A.	Identify materials of construction					
	<i>Apprentices must demonstrate the ability to properly identify and explain the following, if applicable:</i>					
01	Type of material and its properties, such as: <ul style="list-style-type: none"> • Ferrous • Non-ferrous • Copper • Brass • Stainless steel • Aluminums • Other 					
02	Structural components and their required dimensions, such as: <ul style="list-style-type: none"> • Angles • Channels • Sheet or plate • I-beams • Other 					
03	Fasteners and how to measure them, such as: <ul style="list-style-type: none"> • Bolts • Screws • Rivets • Other 					
04	Other (specify):					
05	Other (specify):					
06	Other (specify):					
B.	Interpret bill of materials					
	<i>Apprentices must demonstrate the ability to perform the following, if applicable:</i>					
01	Select proper materials for job per print					
02	Identify and explain description, quantity, and part number					
03	Verify material dimensions					
04	Identify heat/lot number of materials specified					
05	Adhere to employer's traceability process(es)					
06	Other (specify):					
07	Other (specify):					
08	Other (specify):					
C.	Identify title block contents					
	<i>Apprentices must demonstrate the following, if applicable:</i>					
01	Customer					
02	Name of part					
03	Part number					
04	Revision Level / Description					
05	Date of drawing					
06	Tolerance					
07	Drawn by, checked by (or both)					
08	First or third angle projections					
09	Drawing scale					

10	Other (specify):					
11	Other (specify):					
12	Other (specify):					
D.	Identify and interpret blueprints					
	<i>Apprentices must correctly identify and interpret the following, if applicable:</i>					
01	Line types					
02	Orthographic views					
03	Isometric views					
04	Weld and Non-Destructive Examination (NDE) symbols (AWS and ISO)					
05	Dimensioning					
06	Geometric dimensioning and tolerance (GD&T)					
07	Finishing technique and level					
08	Machining symbols					
09	Drawing section views and details					
10	Other (specify):					
11	Other (specify):					
12	Other (specify):					
E.	Identify and interpret job specifications per shop instructions					
	<i>Apprentices must correctly identify and interpret the following, if applicable:</i>					
01	Hold point					
02	Required processes					
03	Run time					
04	Inspection processes					
05	Required tooling or fixtures					
06	Other (specify):					
07	Other (specify):					
08	Other (specify):					

WELDER-FABRICATOR JOB BOOK

Section 3: Perform Welds Using All Processes, Positions and Materials Available to Employer, According to Prescribed Techniques and Industry Standards

Task		Date	JW Initials	Date	JW Initials	JAC
A.	Shielded Metal Arc Welding (SMAW)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • polarity • filler metal • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and complete equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
06	Obtain and maintain industry certifications based on employer need					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
B.	Gas Metal Arc Welding or MIG Welding (GMAW)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • polarity • filler metal • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and complete equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
06	Obtain and maintain industry certifications based on employer need					
07	Other (specify):					
08	Other (specify):					

09	Other (specify):					
C.	Gas Tungsten Arc or TIG Welding					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • polarity • filler metal • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and completes equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
06	Obtain and maintain industry certifications based on employer need					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
D.	Flux Core Arc Welding					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • polarity • filler metal • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and complete equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
08	Obtain and maintain industry certifications based on employer need					
09	Other (specify):					
10	Other (specify):					
11	Other (specify):					
E.	Sub-Arc Welding (SAW)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • polarity • filler metal 					

	<ul style="list-style-type: none"> • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and complete equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
06	Obtain and maintain industry certifications based on employer need					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
F.	Resistance Welding (RW)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Interpret and explain the appropriate weld procedure specifications: <ul style="list-style-type: none"> • machine type • base metals • amps • volts • position • Other (please specify): 					
02	Inspect welding equipment and complete equipment validations					
03	Troubleshoot welding and shop equipment					
04	Perform routine and preventative maintenance on welding machines and equipment					
05	Perform qualification test per applicable code or standard					
06	Obtain and maintain industry certifications based on employer need					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					

WELDER-FABRICATOR JOB BOOK						
Section 4: Produce Precision Fabricated Parts and Assemblies According to Specifications						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Verify job specifications and tolerances					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Verify title block requirements					
02	Identify and interpret job specifications per shop instructions					
03	Other (please specify):					
04	Other (please specify):					
05	Other (please specify):					
B.	Perform routine and preventative maintenance on assembly and fabrication machines and equipment					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Read the owner's manual for the designated equipment					
02	Successfully complete employer's training for the designated equipment					
03	Troubleshoot and implement corrective action, according to employer policy					
04	Ensure safety features are present and active					
03	Other (please specify):					
04	Other (please specify):					
05	Other (please specify):					
C.	Prep base metals for production and subsequent procedures					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Cleaning					
02	Cutting					
03	Grinding					
04	Sandblasting					
05	Priming					
06	Painting					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
D.	Perform fabrication processes according to company safety policies					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Cutting					
02	Sawing					
03	Drilling					
04	Shearing					
05	Punching					
06	Grinding					
07	Forming					
08	Mechanically inserted fasteners					
09	Other (specify):					
10	Other (specify):					
11	Other (specify):					

E.	Measure metal and material stock					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Identify appropriate measuring tool and equipment					
02	Ensure proper calibration of measuring tool and equipment per company standard					
03	Demonstrate correct use of measuring tool and equipment					
04	Verify measurement according to job specifications					
05	Other (specify):					
06	Other (specify):					
07	Other (specify):					
F.	Calculate and convert units of measurement in the context of prints and job specifications:					
	<i>The apprentice shall calculate and convert the following, if applicable:</i>					
01	Angles					
02	Volumes					
03	Area					
04	Fractions					
05	Density/weight					
06	Other (specify):					
07	Other (specify):					
08	Other (specify):					
G.	Lay out parts, shapes and locations					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Parallel line development					
02	Radial line development					
03	Triangulation					
04	Square-to-round, cone, etc.					
05	Other (specify):					
06	Other (specify):					
07	Other (specify):					
H.	Assemble parts, pieces and components					
	<i>The apprentice shall properly perform the following, if applicable:</i>					
01	Verify all dimensions and tolerances					
02	Review prints, notes and job specifications					
03	Assemble accordingly					
04	Other (specify):					
05	Other (specify):					
06	Other (specify):					

WELDER-FABRICATOR JOB BOOK Section 5: Perform All Cutting Processes Available to Employer						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Produce parts according to prints and specifications					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Verify work quality and tolerance					
02	Select proper automated and/or manual cutting process					
03	Perform routine and preventative maintenance on equipment					
04	Set up automated and/or manual cutting equipment					
05	Apply safe cutting practices and procedures to jobs and work zones					
06	Other (specify):					
07	Other (specify):					
08	Other (specify):					
B.	Automated cutting (ex. laser, water jet, high-definition plasma, etc.)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up automatic cutting equipment					
02	Demonstrate awareness of all equipment safety features and employer safety processes					
03	Produce part according to prints and specifications					
04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs (ex. nesting, programming)					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					
C.	Sawing					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up sawing equipment according to the material being used (ex. feed rates, speeds, blade, etc.)					
02	Demonstrate awareness of all equipment safety features and employer safety processes					
03	Produce part according to prints and specifications					
04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs (ex. programming)					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					
D.	Shearing					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up shearing equipment according to the material being used					
02	Demonstrate awareness of all equipment safety features and employer safety processes					
03	Produce part according to prints and specifications					

04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs (ex. programming)					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					
E.	Plasma (Manual Cutting and Gouging)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up equipment according to the material being used					
02	Demonstrate awareness of all equipment safety features and employer safety processes					
03	Produce part according to prints and specifications					
04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					
F.	Oxy fuel (Manual Cutting and Gouging)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up equipment according to the material and fuel/gas being used					
02	Demonstrate awareness of all equipment and gas cylinder safety features and employer safety processes					
03	Produce part according to prints and specifications					
04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					
G.	Gouging (Air Carbon Arc)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Set up equipment according to the material being used					
02	Demonstrate awareness of all equipment safety features and employer safety processes					
03	Produce part according to prints and specifications					
04	Verify work quality and tolerances					
05	Perform routine and preventative maintenance					
06	Use other technologies based on employer needs					
07	Metal finishing, such as deburring, cleaning, tab removal and labeling					
08	Other (please specify):					
09	Other (please specify):					
10	Other (please specify):					

WELDER-FABRICATOR JOB BOOK						
Section 6: Perform Inspection of Welds, Parts, and Assemblies						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Perform inspection of welds					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Identify applicable print, code, standard or company policy					
02	Self-inspect weld					
03	Verify the results meet print, code, standard or company policy					
04	Use appropriate inspection tools (ex. fillet gauge, dye penetrant, mag particle, etc.)					
05	Document conformance/non-conformance of results					
06	Take appropriate corrective action, if necessary					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
B.	Perform inspection of components and parts					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Identify applicable code, standard, print or company policy					
02	Self-inspect component or part					
03	Measure and document appropriate dimensions					
04	Verify component or part is within appropriate tolerances per print, code, standard or company policy					
05	Verify part numbers, revisions, and quantities					
06	Use appropriate inspection tools (ex. caliper, tape measure, protractor, etc.)					
07	Document conformance/non-conformance of results					
08	Take corrective action, if necessary					
09	Other (specify):					
10	Other (specify):					
11	Other (specify):					
C.	Perform inspection of assemblies					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Verify assembly fits together correctly					
02	Verify assembly operates correctly					
03	Verify assembly is within appropriate dimensions and tolerances per print, code, standard or company policy					
04	Use appropriate inspection tools					
05	Document conformance/non-conformance of results					
06	Take corrective action, if necessary					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					

WELDER-FABRICATOR JOB BOOK Section 7: Perform Basic Forming Processes DELETE jac COLUMN THROUGHOUT						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Practice safe forming work procedures					
	<i>Apprentices must properly perform the following, if applicable:</i>					
	01	Demonstrate awareness of equipment operators manual and company practices				
	02	Explain how light curtains function, and identify whether they are working properly				
	03	Explain how foot pedals function, and identify whether they are working properly				
	04	Explain how the emergency stop button functions, and identify whether it is working properly				
	05	Explain how the RAM functions, and identify whether it is working properly				
	06	Demonstrate knowledge of controller safety features				
	07	Other (specify):				
	08	Other (specify):				
	09	Other (specify):				
B.	Calculate bend allowances					
	<i>Apprentices must properly perform the following, if applicable:</i>					
	01	Explain and calculate K-factor				
	02	Verify correct blank size				
	03	Other (specify):				
	04	Other (specify):				
C.	Set up automated forming equipment (hydraulic, pneumatic, and electric) based on job requirements					
	<i>Apprentices must properly perform the following, if applicable:</i>					
	01	Demonstrate awareness of equipment operators manual and company practices				
	02	Explain difference between coining and air-bending				
	03	Explain the limitations of the tooling and equipment Ex. (max tonnage of tooling, material thickness, etc.)				
	04	Demonstrate proper installation of tooling				
	05	Verify proper depth settings				
	06	Adjust material support arm according to part				
	07	Verify RAM and back gauges are calibrated accurately				
	08	Other (specify):				
	09	Other (specify):				
	10	Other (specify):				
	D. Bend metals					
	<i>Apprentices must properly perform the following, if applicable:</i>					
	01	Determine proper bend sequence				
	02	Create the bend sequence program				
	03	Select and install proper tooling				
	04	Bend part per blueprint or work order				
	05	Verify part is dimensionally correct per blueprint or work order				
	06	Demonstrate control of crowning and taper				
	07	Other (specify):				

08	Other (specify):					
09	Other (specify):					
E.	Use hand tools and manual forming equipment					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Use hand tools safely					
02	Demonstrate awareness of equipment operators manual and company practices					
03	Explain the limitations of the tooling and equipment Ex. (max tonnage of tooling, material thickness, etc.)					
04	Adjust manual forming equipment to accommodate various thicknesses					
05	Bend part per blueprint or work order					
06	Verify part is dimensionally correct per blueprint or work order					
07	Other (specify):					
08	Other (specify):					
09	Other (specify):					
F.	Roll various types of metals					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Demonstrate awareness of equipment operators manual and company practices					
02	Explain how the emergency stop button functions, and identify whether it is working properly					
03	Verify correct blank size					
04	Verify correct material thickness					
05	Adjust machine for appropriate material thickness					
06	Adjust machine for appropriate radius					
07	Roll part per blueprint or work order					
08	Verify part is dimensionally correct per blueprint or work order					
09	Other (specify):					
10	Other (specify):					
11	Other (specify):					
H.	Perform other forming processes based on employer specific situations (ex. pipe or tube bending)					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					

WELDER-FABRICATOR JOB BOOK Section 8: Perform Job Set-up Operations in Order to Control Distortion						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Apply metallurgical principles based on job specifications					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Verify job tolerances per production documents					
02	Explain the metal identification systems (AISI, ASTM, SAE, UNS)					
03	Explain characteristics of materials used (ex. hardness, tensile strength, ductility, direction of roll, grain structures, etc.)					
04	Explain cross-contamination					
05	Other (specify):					
06	Other (specify):					
07	Other (specify):					
B.	Apply heat distortion control techniques					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Explain the thermal properties of the material used					
02	Explain the welding sequence					
03	Use welding and fabrication jigs and fixtures					
04	Perform pre-heat and post-weld heating when applicable					
05	Explain and/or perform heat straightening techniques					
06	Other (specify):					
07	Other (specify):					
08	Other (specify):					
C.	Monitor heat input					
	<i>Apprentices must properly explain the following, and perform if applicable:</i>					
01	Methods of monitoring heat input, such as temp sticks, optical thermal monitors, calculations, etc. <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
02	Methods of monitoring inter-pass weld temperatures: <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
03	Post-weld heat treatments, such as thermal blankets and electronically controlled equipment: <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
04	Other (specify):					
05	Other (specify):					
06	Other (specify):					

WELDER-FABRICATOR JOB BOOK						
Section 9: Apply Manufacturing Principles to Welding and Fabrication Work Processes						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Manufacturing Efficiency					
	<i>Apprentices must properly perform the following, if applicable</i>					
01	Explain manufacturing efficiency concepts utilized by employer (ex. lean manufacturing, value stream mapping, 5S or 6S, just-in-time, etc.) <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
B.	Quality Assurance					
	<i>Apprentices must properly perform the following, if applicable</i>					
01	Explain concepts of quality assurance utilized by employer (ex. ISO, Six Sigma, etc.) <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
02	Explain and demonstrate employer's procedure for controlling non-conforming products					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
C.	Continuous Improvement					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Explain concepts of continuous improvement of manufacturing processes utilized by employer (ex. ISO, Six Sigma, etc.) <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
02	Explain the employer's programs for individual development					
03	Suggest improvements to existing processes					
04	Other (specify):					
05	Other (specify):					
06	Other (specify):					
D.	"Green" Initiatives					
	<i>Apprentices must explain and demonstrate the following, if applicable:</i>					
01	Energy use awareness initiatives utilized by employer (ex. turning off equipment not in use) <ul style="list-style-type: none"> • Please specify: 					

	<ul style="list-style-type: none"> • Please specify: • Please specify: 					
02	Waste disposal methods utilized by employer (ex. recycling, weld fume particulate, hazardous materials) <ul style="list-style-type: none"> • Please specify: • Please specify: • Please specify: 					
03	Environmental regulations adhered to by the employer (ex. WI DNR, EPA, OSHA)					
04	Other (specify):					
05	Other (specify):					
06	Other (specify):					
E.	Other (please specify)					
	<i>Apprentices must explain and demonstrate the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					

WELDER-FABRICATOR JOB BOOK						
Section 10: Local Options						
Task		Date	JW Initials	Date	JW Initials	JAC
A.	Other welding processes					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
B.	Other fabrication processes					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
C.	Soldering and brazing					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
D.	CNC equipment/software					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
E.	Other (specify):					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
F.	Other (specify):					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					
05	Other (specify):					
G.	Other (specify):					
	<i>Apprentices must properly perform the following, if applicable:</i>					
01	Other (specify):					
02	Other (specify):					
03	Other (specify):					
04	Other (specify):					

05	Other (specify):					
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